

REMARKS

Applicants have now had an opportunity to carefully consider the Examiner's comments set forth in the Office Action of March 28, 2003. Reexamination and reconsideration are respectfully requested.

Response to Objection to the Drawings

With attention to the objection to Figure 1, Applicants have amended the specification as suggested by the Examiner.

The Examiner stated Fig. 2C failed to comply with 37 CFR 1.84(p)(5) because the reference sign #201 was included in the figure, but not mentioned in the description. The applicant respectfully submits that #201 is mentioned in the description on page 8, line 18.

The Claims Distinguish Patentably and Unobviously over the References of Record

Claim 1 introduces a method of fabricating an electro-optical device suitable for use in an image forming system, comprising providing a substrate wherein a first photosensor is inserted, applying a first filter layer above the substrate, applying an inter-filter layer over at least the first filter layer, and applying a second filter layer over at least a portion of the inter-filter layer without removing the inter-filter layer. Ikeno does not teach a method of fabricating an electro-optical device suitable for use in an image forming system wherein the inter-filter layer is not removed.

It is respectfully submitted the Examiner is importing teachings not shown or suggested by Ikeno et al. and, in fact, a reasonable interpretation teaches away from the presently claimed concepts. Specifically, Ikeno et al. only provides minimal discussion on the actual process for forming its device. It cannot be said the discussion related to Figures 5A-5D discuss each step of the required process. Rather, this patent focuses on the concept of forming a film of uniform thickness on a semiconductor substrate having a concave portion. For example, in Figure 5A, that concave portion is shown by the bracket designated 3, which is the area of a scribe line 3. The process of forming filters over the photosensors is not fully disclosed and cannot be used to describe the concepts of the present application.

As described in the present application, existing processes for fabricating such imaging optical device includes (after a first filter coat has been applied) applying another layer, such as a polyimide layer. Next, the polyimide layer is ground and/or polished down to the level of the first filter coat. Finally, the second filter coat is applied on the

ground surface (page 3, lines 16-18). It is noted a drawback of this technique is that it can be time consuming and inefficient, resulting in waste and increased production time.

If any interpretation of the teaching of Ikeno et al. is to be made, it would be that the polishing and grinding step described in the background of the present application has been undertaken in Ikeno et al. Specifically, looking at Figure 5C, it can be seen that the upper planar "**portion A**" (see attached sheets) of intermediate layer 25 is even with the upper planar "**portion B**" of filter 28. Further, the lower upper planar surface "portion C" of intermediate layer 25 is even with the upper planar surface "portion D" of filter 27. These designs are not occurring naturally. Therefore, it would clearly be interpreted that a grinding or polishing operation has been undertaken.

This is distinctly different than what is shown, for example, in Figure 2C and 2D, where the first filter pattern portion 27 is created in Figure 2C and a first inter-layer 28 is deposited over the first filter 27. Then, as shown in attached Figure 2E, second filter layer 29 is deposited onto the surface of first intermediate layer 28. By this process it can be seen first intermediate layer 28 has not been ground, polished or otherwise removed (*i.e.*, claim 1: without removing the inter-filter layer). Thereafter, in Figure 2F it is shown that the second filter 298 is developed.

Returning to Ikeno et al., a review of this text shows no teaching or suggestion of what is claimed in claim 1, including the concept of applying the second filter layer over at least a portion of the inter-filter layer without removing the inter-filter layer. Clearly, again, to have the evenness on which the filter 28 is connected to the intermediate layer 25 (the lower end) and the evenness between the top (upper end) of the intermediate layer 25 and filter 28 etching, grinding, polishing or other removal of intermediate layer 25

needed to have occurred.

Additionally, returning to the text of Ikeno et al., in column 5, beginning on approximately line 7, it is described that the "second color filter layer 28 is formed through an intermediate layer 25 formed of a transparent polymer, and then a protective layer 26 is formed of a transparent polymer." This description of the process is not effective to teach what is meant by "formed through an intermediate layer 25." Lastly, further showing that the intermediate layer 25 is removed, Applicants point to lines 14-19.

Additionally, the Examiner states that Koizumi et al. does "not disclose mounting an image forming system." (page 5). However, Applicants believe this is a typographical error, and it is references that Ikeno et al. does not disclose mounting its device in an image forming system. The Examiner points to Koizumi et al. to teach mounting in an image forming system.

Additionally, Applicants respectfully traverse the combination of Ikeno et al. and Koizumi et al. Particularly, in the rejection it is argued on page 5 that "Koizumi et al. does not disclose mounting an image forming system." It appears that this is a typographical error, as the next line indicates that as regards to claims 1 and 3, Koizumi et al. teaches mounting an image forming system. Under this interpretation, Applicants hold the position that Koizume et al., in combination with Ikeno et al., is improper. In presenting the combination, it is stated that one of ordinary skill in the art would have combined them, "since one would be motivated to mount it for forming images as implied from Koizume et al. (column 1, lines 12-25)." Applicants respectfully submit this is not a reason for combination. Koizume et al. is the reference which teaches mounting in an image forming system. The implication should be in Ikeno et al. There is no such

implication stated or suggested. For this reason, Applicants respectfully request the Examiner to remove this rejection based on this combination.

New **claim 21** has been added to clarify an embodiment where the inter-filter layer is applied over the patterned first filter of the first filter layer and either one of the substrate or a base layer, as more clearly reflected in the figures.

New **claim 22** depending from claim 1 has been added to more specifically recite that the concept of not removing the inter-filter layer includes not polishing or grinding the first inter-filter layer.

Lastly, method **claim 23** depending from claim 1 emphasizes a particular embodiment where the inter-filter layer is provided with a color to modify the incoming wavelength. This is discussed, for example, in the application on page 5, beginning approximately at line 8.

Thus, applying the second filter layer over the inter-filter layer without removing the inter-filter layer is more efficient because it reduces waste and minimizes production time. Since Ikeno et al. removes a portion of the inter-filter layer, Ikeno et al. does not contemplate a reduction in waste or increased production time.

Claim 1 was amended under 35 U.S.C. §112, to address comments of the Examiner in order to forward prosecution of the application.

At page 5, lines 1-2, the Examiner discusses Ikeno and Title and Fig. 11A-11F, since Ikeno does not contain Fig. 11A-11F, the applicant will treat Fig. 11A-11F as taken from Koizumi. If this is incorrect, the applicant requests to be informed of the correct manner to treat the figures.

It is respectfully submitted that claim 1 defines patentably and unobviously over Ikeno

and Koizumi and the subject matter as a whole would not have been obvious at the time the invention was made to a person having ordinary skill in the art. It is also respectfully submitted that **claims 2-7** are dependent on claim 1 and are in condition for allowance.

Claim 8 introduces a method of making an electro-optical device for image sensing, comprising providing a substrate, applying a first inter-filter layer on the first filter layer, then covering an area of the first inter-filter layer with a patterned second filter layer, without removing a portion of the first inter-filter layer. For the reasons set forth in the discussion of **claim 1**, it is submitted Ikeno et al. does not teach or suggest a method of making an electro-optical device for use in image sensing wherein the inter-filter layer is not removed. Applying the second filter layer over the inter-filter layer without removing any portion of the inter-filter layer is more efficient because it reduces waste and minimizes production time. Thus, because Ikeno removes a portion of the inter-filter layer, Ikeno does not contemplate a reduction in waste or increased production time.

Claim 8 also utilizes a second filter layer, which allows light having a wavelength within a second range to reach the second photosensor. Koizumi does not contemplate using a second filter layer because Koizumi only introduces using one filter layer, not two. Thus, Koizumi does not teach a method of making an electro-optical device for image sensing comprising a second filter layer that allows light having a wavelength within a second range to reach the second photosensor. Koizumi further discloses that a multi-layered wiring structure is adopted. This structure removes layers from a region on the substrate allowing a portion of the substrate to be exposed. Claim 8 does not teach removing a region of the inter-filter layers and thus exposing a portion of the substrate.

Claim 8 was amended per the Examiner's request to clarify which inter-filter layer is

being referred to. The applicant has changed it accordingly.

It is respectfully submitted that **claim 8** defines patentably and unobviously over Ikeno and Koizumi and the subject matter as a whole would not have been obvious at the time the invention was made to a person having ordinary skill in the art. It is also respectfully submitted that **claims 9-16** are dependent on claim 8 and are in condition for allowance.

Claims 9, 10, and 12 were amended per the Examiner's request to clarify which inter-filter layer is being referred to. The applicant has changed it accordingly.

Claim 17 introduces an electro-optical device for image sensing, comprising a substrate with a first inter-filter layer disposed permanently on the first filter layer and at least on a portion of the substrate. For the reasons set forth in connection with **claim 1**, it is submitted Ikeno et al. does not disclose an electro-optical device for image sensing wherein the first inter-filter layer is permanently disposed on the first filter layer and at least on a portion of the substrate. Permanently disposing the first inter-filter layer on the first filter layer without removing a portion of the inter-filter layer is more efficient because it reduces waste and minimizes production time. Thus, because Ikeno does not permanently dispose the inter-filter layer, Ikeno does not contemplate a reduction in waste or increased production time.

Claim 17 was amended per the Examiner's request to clarify which inter-filter layer is being referred to. The applicant has changed it accordingly.

It is respectfully submitted that claim 17 defines patentably and unobviously over Ikeno and Koizumi and the subject matter as a whole would not have been obvious at the time the invention was made to a person having ordinary skill in the art. It is also respectfully submitted that **claims 18-20** are dependent from claim 17 and are in condition for allowance.

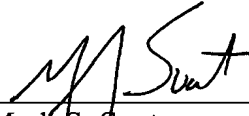
Claims 18-20 were amended per the Examiner's request to clarify which inter-filter layer is being referred to. Claims 18-20 were also amended per the Examiner's request to change the dependency of these claims to claim 17. The applicant has changed these accordingly.

CONCLUSION

For the reasons set forth above, it is respectfully submitted that claims 1-23 distinguish patentably and unobviously over the reference of record. An early allowance of all claims is earnestly solicited.

Respectfully submitted,

FAY, SHARPE, FAGAN,
MINNICH & McKEE, LLP



Mark S. Svat
Reg. No. 34,261
1100 Superior Avenue
Seventh Floor
Cleveland, OH 44114-2518
(216) 861-5582

CERTIFICATE OF MAILING

I hereby certify that this RESPONSE in connection with U.S. Patent Application Serial No. 09/750,426 is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C., 20231, on this 30 day of June, 2003.

By: 

Karen M. Forsyth

note

FIG.5A

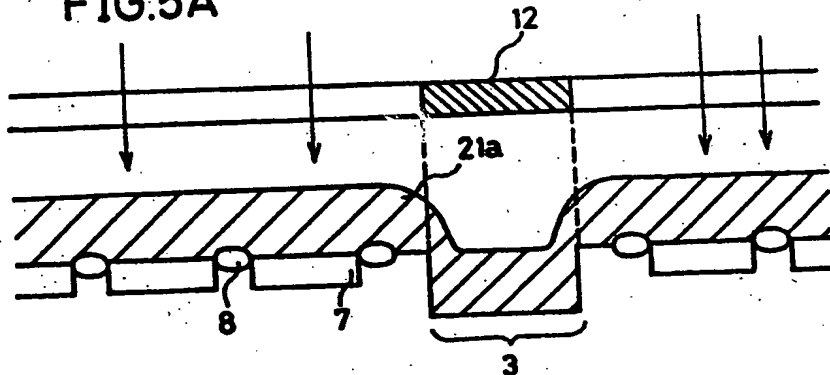


FIG.5B

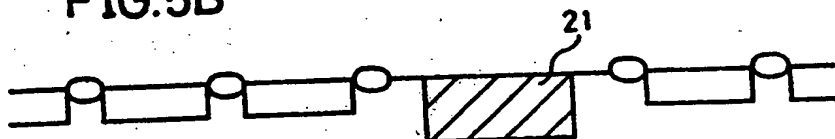


FIG.5C

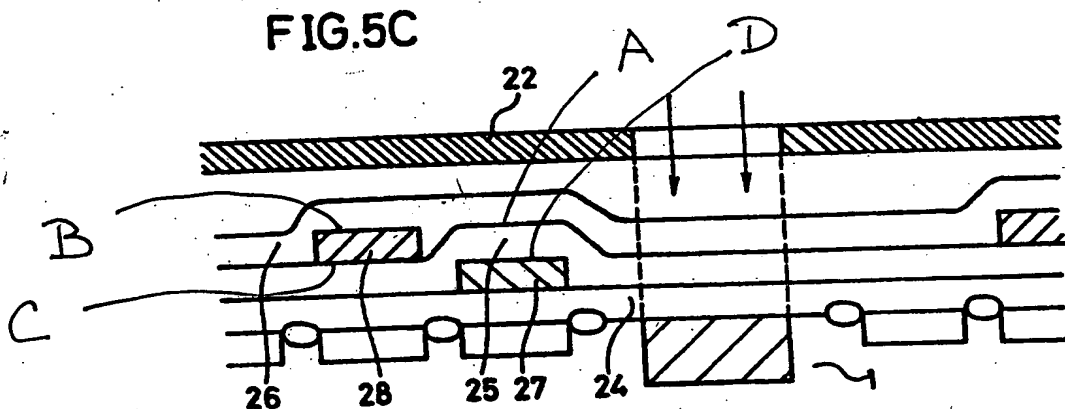
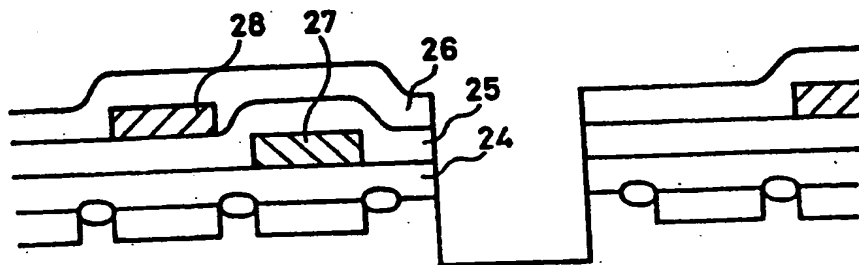


FIG.5D



Not
part
of
drawings
of
09/150425

part
of
Applicant's
Arguments

